

## INVESTIGATE RULES OF GAMES

### Practice 1

**Objective:**

**To investigate and generate rules for the probabilities of different events if you toss three coins at the same time.**

**Instructions:**

In this task, you are required to:

- figure out which events have what probabilities
- describe these probabilities as general rules
- verify your probability rules by showing theoretical workings.

**Hints:**

1. You may approach this problem experimentally (by tossing the coins) or theoretically (considering what the right answer should be without actually tossing the coins).
2. You will need to justify your pattern theoretically, but it may be easier to find the pattern by tossing the coins.
3. What are the possible events if you toss three coins?
4. Which method are you going to record your results? (A table? A tree diagram?)
5. Present your work neatly, tidily and logically.

**CRITERION B: INVESTIGATING PATTERNS**

Achievement level	IBO published Level Descriptors MYP 1 (Year 6)
<b>1–2</b> <b>Simple Patterns</b>	The student is able to: i. apply, with teacher support, mathematical problem-solving techniques to recognize simple patterns ii. state predictions consistent with simple patterns.
<b>3–4</b> <b>General Rule</b>	The student is able to: i. apply mathematical problem-solving techniques to recognize patterns ii. suggest how these patterns work.
<b>5–6</b> <b>Draw Conclusion</b>	The student is able to: i. apply mathematical problem-solving techniques to recognize patterns ii. suggest relationships or general rules consistent with findings iii. verify whether patterns work for another example.
<b>7–8</b> <b>Justification</b>	The student is able to: i. select and apply mathematical problem-solving techniques to recognize correct patterns ii. describe patterns as relationships or general rules consistent with correct findings iii. verify whether patterns work for other examples.

**\*\*Note:** A task that does not allow students to select a problem-solving technique is too guided and should result in students earning a maximum achievement level of 6 (for MYP years 1 and 2).